

In the outstanding Office Action, the Examiner rejected all the claims as being unpatentable over the patent to Manning et al., 5,423,546 in view of Applicant's own patent, Rife 5,562,551, or further in view of the patent to Shimasaki, 5,658,208. Manning et al. is directed to a golf club head having a peripheral weight that surrounds the entire rear surface with a predominance of weight 58 at the upper toe area. There is no blade structure anywhere on the rear surface of the club head. The patent to Rife is directed to an iron type golf club head with a peripheral weight structure on the upper half of the club head, the lower half being a muscle-back type structure. Shimasaki is a club head with a rear cavity filled with a lighter metallic insert material. The rear cavity of the Shimasaki club head extends to the top edge of the rear surface of the club head.

Applicant's invention is an iron type golf club head having a heel to toe elongated rear cavity and perimeter weight forming the cavity that is located solely on the lower portion of the rear surface of the club head, toward the bottom sole. Extending the rear cavity to the upper edge, as shown in the cited prior art, causes the vibration from ball contact to dissipate, thus reducing feel to the golfer. Unlike the prior art, Applicant's cavity does not extend to the upper edge of the club head, rather it is confined to the lower area of the iron head's rear surface behind the actual area where virtually all miss hits occur. By lowering the top edge of the cavity while keeping its width in a heel to toe direction, the iron type club head of the present invention generates a tighter blade like feel while still providing forgiveness for off-center hits. Therefore, a primary concept of the present invention is to provide more forgiveness only at a critical location at the lower portion of the club head while maintaining the structure of a blade type iron at the upper areas of the club head to provide a more solid feel when the club head makes contact with a ball during the execution of a golf shot. Applicant's preferred embodiments locate a heel to toe, perimeter weighted cavity on a lower two-thirds portion of the rear

surface of the club head. A specific preferred embodiment locates a perimeter weighted cavity on the bottom half of the rear surface of a club head.

None of the cited prior art, either alone or in combination, shows the underlying concept of Applicant's invention, that is, none of the prior art is formed with a two-part rear surface including a lower, elongated, perimeter weighted cavity that is located entirely on the bottom of the rear surface of the club head. Applicant's own patent, applied by the Examiner, teaches away from the present invention by placing the cavity on the upper portion of the rear surface of a club head. Applicant's new independent claims 33, 42, 52 and 61 clearly define the structure of Applicant's invention. Claim 33 calls for a club head with a heel to toe elongated cavity located solely in the approximate bottom two-thirds of the rear surface of the club head. Claims 42 and 52 further define the upper blade structure in combination with the lower perimeter weighted cavity in the approximate bottom two-thirds of the club head. Claim 61 defines a club head wherein the perimeter weight and cavity is located solely in a lower half of the rear surface.

Applicant's dependent claims, in combination with a lower cavity, call for additional structure, including a cavity insert, an additional weighted mass in the cavity and specific cavity locations toward the toe and heel areas of the club head. The applied references do not show these structures in combination with the lower cavity structure.


In addition to the applied prior art, the Office Action cites U. S. Patents to Campau, 4,420,156, Schele et al, 5,224,705, Hutin, 5,586,947 and Hamada et al, 6,086,485. None of these patents show club head structures with a perimeter weighted cavity solely in a lower two-thirds of the rear surface of the club head. None of these cited references show club head structures with the claimed features of the dependent claims in combination with the claimed rear cavity structure.

Therefore, for the reasons outlined above, Applicant respectfully requests reconsideration of the outstanding rejections and a notice of allowance thereafter. Early notification thereof is earnestly solicited.

Attached hereto is a marked up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact applicants' representative at the below number.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Cancel claims 1-15, 17 and 20-32

Add the following new claims 33-61:

--33. An iron type golf club head having a club head body and means for connection to a shaft; said club head body including a heel, toe, a ball striking face, a top ridge surface and bottom sole surface, wherein the improvement comprises:

a rear surface having an upper portion and a lower portion; said upper portion and said lower portion extending across said rear surface from adjacent said heel to adjacent said toe; said upper portion extending downwardly toward said bottom sole approximately one-third the distance between said top ridge and said bottom sole; said lower portion located below said upper portion and said lower portion being within an approximate lower two-thirds of said rear surface in a direction between said bottom sole and said top ridge; said lower portion including a heel to toe, elongated cavity located solely in said lower portion of said rear surface .

34. The iron type golf club head of claim 33 wherein said elongated cavity is formed with a lower surface, a bottom side wall, a toe side wall, a heel side wall and an upper side wall; said walls defining the outer perimeter of said elongated cavity.

35. The iron type golf club head of claim 33 wherein said elongated cavity is recessed into said rear surface; said rear surface having a thickness between a lowermost surface of said elongated cavity and

said ball striking face that is thinner than the thickness between the non-cavity portions of said rear surface and said ball striking face.

36. The iron type golf club head of claim 33 wherein said elongated cavity is recessed into said rear surface; said rear surface having a maximum thickness between an entire lower surface of said elongated cavity and said ball striking face that is thinner than the thickness between the non-cavity portions of said rear surface and said ball striking face.

37. The iron type golf club head of claim 33 wherein the said upper portion is adjacent to a top edge of said elongated cavity in said lower portion of said rear surface.

38. The iron type golf club head of claim 33 wherein said rear surface further includes a mass extending in a heel to toe direction between said upper portion and said elongated cavity in said lower portion of said rear surface.

39. The iron type golf club head of claim 33 wherein a bottom edge of said upper portion is defined by a ledge coincident with a top edge of said elongated cavity.

40. The iron type golf club head of claim 33 wherein an insert material is located within said elongated cavity.

41. The iron type golf club head of claim 33 further including a weighted mass on said rear surface and located within said elongated cavity.

42. An iron type golf club head having a club head body and means for connection to a shaft; said club head body including a heel, toe, a ball striking face, a top ridge surface and bottom sole surface, wherein the improvement comprises:

a rear surface having an upper portion and a lower portion, said upper portion and said lower portion extending across said rear surface from adjacent said heel to adjacent said toe; said upper portion extending downwardly toward said bottom sole approximately one-third the distance between said top ridge and said bottom sole; said upper portion being further defined as a blade like structure with a generally uniform thickness; said lower portion located below said upper portion and being within an approximate lower two-thirds of said rear surface in a direction between said bottom sole and said top ridge; said lower portion including a heel to toe elongated cavity located solely in said lower portion of said rear surface.

43. The iron type golf club head of claim 42 wherein said upper portion is further defined as having a non-cavity structure.

44. The iron type golf club head of claim 42 wherein said elongated cavity is formed with a lower surface, a bottom side wall, a toe side wall, a heel side wall and an upper side wall; said walls defining the outer perimeter of said elongated cavity.

45. The iron type golf club head of claim 42 wherein said elongated cavity is recessed into said rear surface; said rear surface having a thickness between a lowermost surface of said elongated cavity and said ball striking face that is thinner than the thickness between the non-cavity portions of said rear surface and said ball striking face.

46. The iron type golf club head of claim 42 wherein said elongated cavity is recessed into said rear surface; said rear surface having a maximum thickness between an entire lower surface of said elongated cavity and said ball striking face that is thinner than the thickness between the non-cavity portions of said rear surface and said ball striking face.

47. The iron type golf club head of claim 42 wherein the said upper portion is adjacent to a top edge of said elongated cavity in said lower portion of said rear surface.

48. The iron type golf club head of claim 42 wherein said rear surface further includes a mass extending in a heel to toe direction between said upper portion and said elongated cavity in said lower portion of said rear surface.

49. The iron type golf club head of claim 42 wherein a bottom edge of said upper portion is defined by a ledge coincident with a top edge of said elongated cavity.

50. The iron type golf club head of claim 42 wherein an insert material is located within said elongated cavity.

51. The iron type golf club head of claim 42 further including a weighted mass on said rear surface located within said elongated cavity.

52. An iron type golf club head having a club head body and means for connection to a shaft; said club head body including a heel, toe, a ball striking face, a top ridge surface and bottom sole surface, wherein the improvement comprises:

a rear surface having an upper portion; and a perimeter-weighted cavity lower portion; said upper portion extending downwardly toward said bottom sole approximately one-third the distance between said top ridge and said bottom sole; said upper portion being further defined as a non-perimeter weighted, blade type, iron structure of generally uniform thickness and extending across said rear surface from adjacent said heel to adjacent said toe; said lower portion located below said upper portion and said lower portion forming an approximate lower two-thirds of said rear surface in a direction toward said bottom sole from said top ridge; said lower portion including an elongated, perimeter weighted cavity extending in a heel to toe direction and a perimeter weight defining at least heel, toe and bottom sole portions of said cavity; said perimeter weighted cavity and said perimeter weight being located solely in said lower portion of said rear surface.

53. The iron type golf club head of claim 52 wherein said elongated, perimeter weighted cavity is formed with a lower surface, a bottom side wall, a toe side wall, a heel side wall and an upper side wall; said walls defining the outer perimeter of said elongated cavity.



54. The iron type golf club head of claim 52 wherein said elongated cavity is recessed into said rear surface; said rear surface having a thickness between a lowermost surface of said elongated cavity and said ball striking face that is thinner than the thickness between the non-cavity portions of said rear surface and said ball striking face.

55. The iron type golf club head of claim 52 wherein said elongated cavity is recessed into said rear surface; said rear surface having a maximum thickness between an entire lower surface of said elongated cavity and said ball striking face that is thinner than the thickness between the non-cavity portions of said rear surface and said ball striking face.

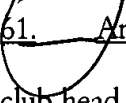
56. The iron type golf club head of claim 52 wherein the said upper portion of said rear surface is adjacent to a top edge of said elongated, perimeter weighted cavity in said lower portion of said rear surface.

57. The iron type golf club head of claim 52 wherein said rear surface further includes a mass extending in a heel to toe direction between said upper portion and said elongated, perimeter weighted cavity in said lower portion of said rear surface.

58. The iron type golf club head of claim 52 wherein a bottom edge of said upper portion is defined by a ledge coincident with a top edge of said elongated, perimeter weighted cavity.

59. The iron type golf club head of claim 52 wherein an insert material is located within said elongated, perimeter weighted cavity.

60. The iron type golf club head of claim 52 further including a weighted mass on said rear surface located within said elongated, perimeter weighted cavity.

 61. An iron type golf club head having a club head body and means for connection to a shaft; said club head body including a heel, toe, a ball striking face, a top ridge surface and bottom sole surface, wherein the improvement comprises:

a rear surface having an upper portion and a lower portion; said upper and lower portion extending across said rear surface from adjacent said heel to adjacent said toe; said upper portion extending downwardly toward said bottom sole approximately midway between said top ridge and said bottom sole; said lower portion located below said upper portion and extending upwardly toward said top ridge approximately midway between said bottom sole and said top ridge; said lower portion including a heel to toe, elongated cavity located solely in said lower portion of said rear surface . --

Please amend claims 16, 18 and 19 as follows:

16. The club head of claim 40 [15] further including undercut retention means on rear cavity walls for retention of said insert material.

18. The club head of claim 33 [1] wherein said cavity is located on said lower portion of said rear surface toward said heel.

19. The club head of claim 33 [1] wherein said cavity is located on said lower portion of said rear surface toward said toe.